

Test Report

ICON SOLAR-EN POWER TECHNOLOGIES PVT. LTD.

REPORT NUMBER: 4787707130-S1
PROJECT NUMBER: 4787707130

Reviewed by signature:
12-LO-F0852, Issue 4.0

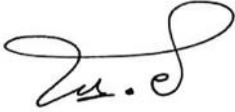



Location (a)
UL India Lab,
UL India Pvt Limited,
Laboratory building,
Kalyani Platina
Campus, Sy.no.129/4,
EPIP Zone, Phase II,
Whitefield,
Bangalore – 560 066
P:91-80-41384400

.....
Location (b)
UL India Pvt Limited,
413 Sector-8, IMT
Manesar, Gurgaon.P:
91-124-22990246

General Details

Customer / Applicant	ICON SOLAR-EN POWER TECHNOLOGIES PVT. LTD. MAGNETO MALL, 319 & 320 OFFIZO, 3RD FLOOR, G.E. ROAD, RAIPUR, CHHATTISGARH, 492001, INDIA		
Manufacturer	ICON SOLAR-EN POWER TECHNOLOGIES PVT. LTD. MAGNETO MALL, 319 & 320 OFFIZO, 3RD FLOOR, G.E. ROAD, RAIPUR, CHHATTISGARH, 492001, INDIA		
Program	Others		
Test Lab Location	(a) UL Bangalore	Refer to Cover page for the UL address	
Item Under Test	300W Poly Crystalline Module		
Model Tested	ISEN 300, 300W – Representing other Models to be covered as detailed in the Report below based on Applicant Declaration Letter provided.		
Number of Samples	3Nos		
UL Sample Identification	693493, 693494 & 693495	Refer Summary of Test results for multiple samples	
Manufacturer Serial Number (if any)	ICON30036A0210151036, ICON30036A0210151040 & ICON30036A0210151043		
Condition of IUT on receipt	Good		
Date of Receipt	15/11/2016		
Applicable Standard	PID (Potential Induced Degradation) Testing of Solar Photovoltaic modules as per IEC 62804 – Test Methods for The Detection of Potential-Induced Degradation Part 1: Crystalline Silicon Photovoltaic Modules. Edition 1.0, 2015-08 [Negative Grounding] (Severity level as per recent MNRE requirement: 3 Cycles at 85°C ± 2°C, 85 ± 3% of RH for 96Hrs – Total 288Hrs)		
Date of Testing (Start date)	01/12/2016	End Date	28/12/2016
UL general^ ambient condition	Temperature in °C		25 +3/-5°C
	Relative humidity in %		45-70 %
Date of Reporting	03/01/2017		
Test Results	PASS		
Test In-charge	Srimathy N		

 Mahesh V Project Engineer	 Sripam Saurabh Engineering Leader
Reviewed by	Authorized signatory

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Reviewed by signature:



Models Covered:

MODEL NAME	WATTAGE (WP)	MAXIMUM SYSTEM VOLTAGE (Vdc)	OPEN CIRCUIT VOLTAGE @STC (Vdc)	RATED VOLTAGE @STC, (Vdc)	RATED CURRENT @ STC (A)	SHORT CIRCUIT CURRENT @ STC, (A)	RATED MAXIMUM POWER AT STC, (Watts)	MAXIMUM SERIES FUSE (A)
ISEN150	150	1000	22.23	18.11	8.31	8.74	150.5	15
ISEN165	165	1000	24.64	20.08	8.23	8.67	165.3	15
ISEN170	170	1000	24.78	20.18	8.43	8.84	170.1	15
ISEN195	195	1000	29.48	24.04	8.12	8.59	195.2	15
ISEN200	200	1000	29.64	24.14	8.31	8.74	200.6	15
ISEN205	205	1000	29.77	24.24	8.47	8.87	205.3	15
ISEN220	220	1000	33.19	27.06	8.15	8.61	220.5	15
ISEN225	225	1000	33.35	27.16	8.31	8.74	225.7	15
ISEN230	230	1000	33.46	27.25	8.45	8.84	230.3	15
ISEN250	250	1000	44.46	36.18	6.92	7.28	250.4	15
ISEN250	250	1000	37.05	30.12	8.31	8.75	250.3	15
ISEN255	255	1000	37.18	30.27	8.43	8.84	255.2	15
ISEN260	260	1000	37.28	30.58	8.51	8.93	260.2	15
ISEN265	265	1000	37.36	30.69	8.64	9.01	265.2	15
ISEN270	270	1000	40.58	33.08	8.17	8.62	270.3	15
ISEN275	275	1000	40.76	33.20	8.31	8.74	275.9	15
ISEN280	280	1000	40.89	33.29	8.43	8.84	280.6	15
ISEN300	300	1000	44.45	36.18	8.30	8.75	300.3	15
ISEN305	305	1000	44.59	36.33	8.40	8.83	305.2	15
ISEN310	310	1000	44.70	36.43	8.51	8.93	310.0	15
ISEN315	315	1000	44.85	36.52	8.63	9.02	315.2	15
ISEN320	320	1000	45.00	36.59	8.75	9.12	320.2	15
ISEN325	325	1000	45.02	36.73	8.85	9.16	325.1	15
ISEN330	330	1000	45.07	37.2	8.88	9.21	330.3	15

Applicant Declaration Letter:



Module Manufacturing Declaration

Date: 03/01/2017

Company: Icon Solar EN Power Technologies Pvt. Ltd

This is to certify that the (ISEN 300) PID tested modules from UL-India are built with identical raw materials, components and production parameters of IEC tested module ISEN310 from UL-India, is therefore following models are belongs to same module type family.

Module to be covered for PID:

ISEN 150, ISEN 165, ISEN 170, ISEN 195, ISEN 200, ISEN 205, ISEN 220, ISEN 225, ISEN 230, ISEN 250, ISEN 255, ISEN 260, ISEN 265, ISEN 270, ISEN 275, ISEN 280, ISEN 300, ISEN 305, ISEN 310, ISEN 315, ISEN 320, ISEN 325, ISEN 330.

Debkumar Banerjee
GM-Technical



Icon Solar-en Power Technologies Pvt. Ltd.

Regd. Office: 319-320, Offizo, 3rd Floor, Magneto Mall ,G.E Road ,Raipur 492001 Chhattisgarh.

Tel :+91-771-4065755 E-mail: iconsolaren@gmail.com Website : www.iconsolar-en.com

Factory: village Dhigari, Mandir Hasaud, Tehsil Arang-493441, Raipur ,Chhattisgarh (India)

TIN No. 22761704727 CIN No. U29307CT2014PTCOO1359



Electrical parameters of Icon Modules to be covered for PID:

MODEL NAME	WATTAGE (WP)	MAXIMUM SYSTEM VOLTAGE (Vdc)	OPEN CIRCUIT VOLTAGE @STC (Vdc)	RATED VOLTAGE @STC, (Vdc)	RATED CURRENT @ STC (A)	SHORT CIRCUIT CURRENT @ STC, (A)	RATED MAXIMUM POWER AT STC, (Watts)	MAXIMUM SERIES FUSE (A)
ISEN150	150	1000	22.23	18.11	8.31	8.74	150.5	15
ISEN165	165	1000	24.64	20.08	8.23	8.67	165.3	15
ISEN170	170	1000	24.78	20.18	8.43	8.84	170.1	15
ISEN195	195	1000	29.48	24.04	8.12	8.59	195.2	15
ISEN200	200	1000	29.64	24.14	8.31	8.74	200.6	15
ISEN205	205	1000	29.77	24.24	8.47	8.87	205.3	15
ISEN220	220	1000	33.19	27.06	8.15	8.61	220.5	15
ISEN225	225	1000	33.35	27.16	8.31	8.74	225.7	15
ISEN230	230	1000	33.46	27.25	8.45	8.84	230.3	15
ISEN250	250	1000	44.46	36.18	6.92	7.28	250.4	15
ISEN250	250	1000	37.05	30.12	8.31	8.75	250.3	15
ISEN255	255	1000	37.18	30.27	8.43	8.84	255.2	15
ISEN260	260	1000	37.28	30.58	8.51	8.93	260.2	15
ISEN265	265	1000	37.36	30.69	8.64	9.01	265.2	15
ISEN270	270	1000	40.58	33.08	8.17	8.62	270.3	15
ISEN275	275	1000	40.76	33.20	8.31	8.74	275.9	15
ISEN280	280	1000	40.89	33.29	8.43	8.84	280.6	15
ISEN300	300	1000	44.45	36.18	8.30	8.75	300.3	15
ISEN305	305	1000	44.59	36.33	8.40	8.83	305.2	15
ISEN310	310	1000	44.70	36.43	8.51	8.93	310.0	15
ISEN315	315	1000	44.85	36.52	8.63	9.02	315.2	15
ISEN320	320	1000	45.00	36.59	8.75	9.12	320.2	15
ISEN325	325	1000	45.02	36.73	8.85	9.16	325.1	15
ISEN330	330	1000	45.07	37.2	8.88	9.21	330.3	15



Icon Solar-en Power Technologies Pvt. Ltd.

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Tel :+91-771-4065755 E-mail: iconsolaren@gmail.com Website : www.iconsolar-en.com

Factory: village Dhigari, Mandir Hasaud, Tehsil Arang-493441, Raipur , Chhattisgarh (India)

TIN No. 22761704727 CIN No. U29307CT2014PTCOO1359

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Description of Item under Test (IUT)

Poly Crystalline PV Modules for PID testing. Total 2 samples were tested. 1 sample was control sample.

Sample Identification for PID Test			
Sample Identification	Sample card Number	Test	Product Identification & Serial Number
1	693493	PID (Negative Grounding)	Icon Solar-en Power Technologies Pvt. Ltd, Crystalline PV module, 300W, Sr. No. ICON30036A0210151036
2	693494		Icon Solar-en Power Technologies Pvt. Ltd, Crystalline PV module, 300W, Sr. No. ICON30036A0210151040
3	693495 (Control)		Icon Solar-en Power Technologies Pvt. Ltd, Crystalline PV module, 300W, Sr. No. ICON30036A0210151043

PV Module BOM details: (As declared by Module manufacturer)

	Description (Make, Model & Type details)
PV Module Rating	IS-EN 300 / 300Wp (72 cells)
Front Cover	Borosil, 3.2 mm solar glass
Rear Cover	Madico, Reflekt Light
Encapsulation material	TPI make ST308 FC
Frame	Ultra Aluminium make profile section 42 x 35 x 1.5 (mm)
Dimensions(l x w x h) [mm]	1964 x 986 x 42 mm
Module area [m ²]	1.936 m ²
PV Cell	Suntech, 156 x 156 mm Multi Crystalline solar cell
Cell- and string connectors	Luvata, 1.3 x 0.15mm & 5 x 0.3mm
Junction box	Tyco, 4 rail- 3 bypass diode
Cable	Tyco
Connectors	Tyco
Adhesive for frame	Pentagon, PT-390W
Adhesive for JB	Sikasil, AS-60 CN

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Summary of Test Results:

Test No.	Test Name	Results
1	Preconditioning (Pre- PID Test)	Pass
2	Visual Inspection Test (Pre-PID Test)	Pass
3	Maximum Power Determination (Pre-PID Test)	Pass
4	Performance at low irradiance (Pre-PID Test)	Pass
5	Wet Leakage Current Test (Pre-PID Test)	Pass
6	Electroluminescence at Isc and 0.1*Isc (Pre-PID Test)	Pass
7	Ground continuity test (Pre-PID Test)	Pass
8	PID Test: 3 Cycles at 85°C ± 2°C, 85 ± 3% of RH for 96Hrs – Total 288Hrs	Test Condition: 3 Cycles at 85°C ± 2°C, 85 ± 3% of RH for 96Hrs – FIRST CYCLE
9	Maximum Power Determination (Post-PID Test)	Pass
10	Performance at low irradiance (Post-PID Test) – Final	Pass
11	Wet Leakage Current Test (Post-PID Test)	Pass
12	Electroluminescence at Isc and 0.1*Isc (Post-PID Test)	Pass
13	Visual Inspection Test (Post-PID Test)	Pass
14	PID Test: 3 Cycles at 85°C ± 2°C, 85 ± 3% of RH for 96Hrs – Total 288Hrs	Test Condition: 3 Cycles at 85°C ± 2°C, 85 ± 3% of RH for 96Hrs – SECOND CYCLE

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15	Maximum Power Determination (Post-PID Test)	Pass
16	Performance at low irradiance (Post-PID Test) – Final	Pass
17	Wet Leakage Current Test (Post-PID Test)	Pass
18	Electroluminescence at Isc and 0.1*Isc (Post-PID Test)	Pass
19	Visual Inspection Test (Post-PID Test)	Pass
20	PID Test: 3 Cycles at 85°C ± 2°C, 85 ± 3% of RH for 96Hrs – Total 288Hrs	Test Condition: 3 Cycles at 85°C ± 2°C, 85 ± 3% of RH for 96Hrs – THIRD CYCLE
21	Maximum Power Determination (Post-PID Test)	Pass
22	Performance at low irradiance (Post-PID Test) – Final	Pass
23	Wet Leakage Current Test (Post-PID Test)	Pass
24	Electroluminescence at Isc and 0.1*Isc (Post-PID Test)	Pass
25	Visual Inspection Test (Post-PID Test)	Pass



Equipment & Calibration details:

Sl. No.	Test Equipment	UL Equipment ID	Calibration status (Valid up to)
1	FLASH SOLAR SIMULATOR (PV LAB)	70683	10 January 2017
2	Data logger, RH & Temperature	65675	30 May 2017
3	REFERENCE MODULE (PV LAB)	82332	Support Equipment
4	FLASH SOLAR SIMULATOR (PV LAB)	70472	17 June 2017
5	Power Supply, DC	70581	27 May 2017
6	Power Supply, DC	70691	18 August 2017
7	Power Supply, DC	70583	28 May 2017
8	Chamber, Climatic, Temp and RH	71546	06 January 2017
9	Power Supply, DC	70586	19 August 2017
10	Apparatus, Ground Bond Test	86749	16 October 2017
11	Data logger, RH & Temperature	65679	30 May 2017
12	Data logger, Temperature	68858	29 September 2017



TEST RESULTS & OBSERVATIONS

Date: 08/12/2016

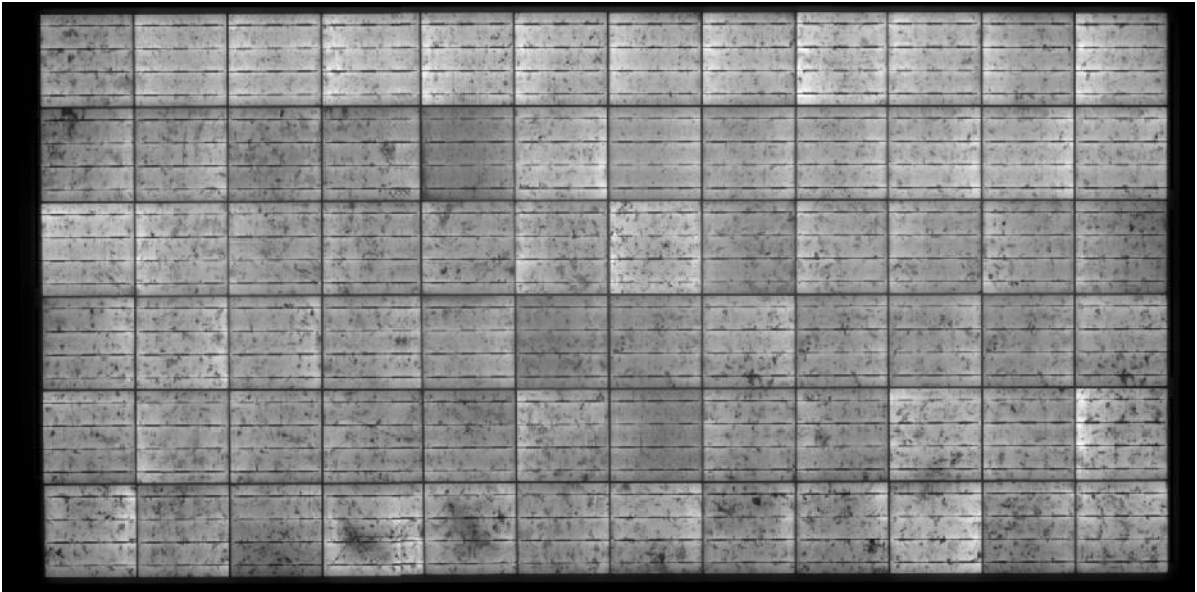
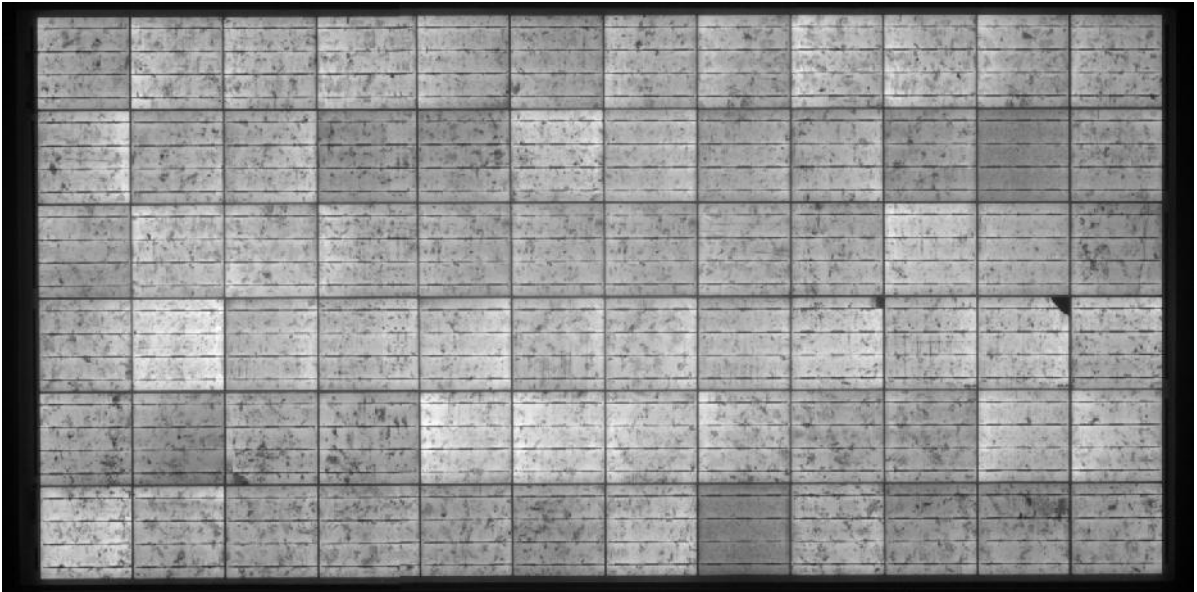
Table 10.1	MST 01 – VISUAL INSPECTION– INITIAL (Pre PID Test after Preconditioning)			—
Sample No.	Position in test sequence:			—
1	Initial examination		No visual defects	P
	Preconditioning:		Exposed for 5 kwh.m2	-
	Final examination		No visual defects	P
2	Initial examination		No visual defects	P
	Preconditioning:		Exposed for 5 kwh.m2	-
	Final examination		No visual defects	P
3	Initial examination		No visual defects	P
	Preconditioning:		Exposed for 5 kwh.m2	-
	Final examination		No visual defects	P

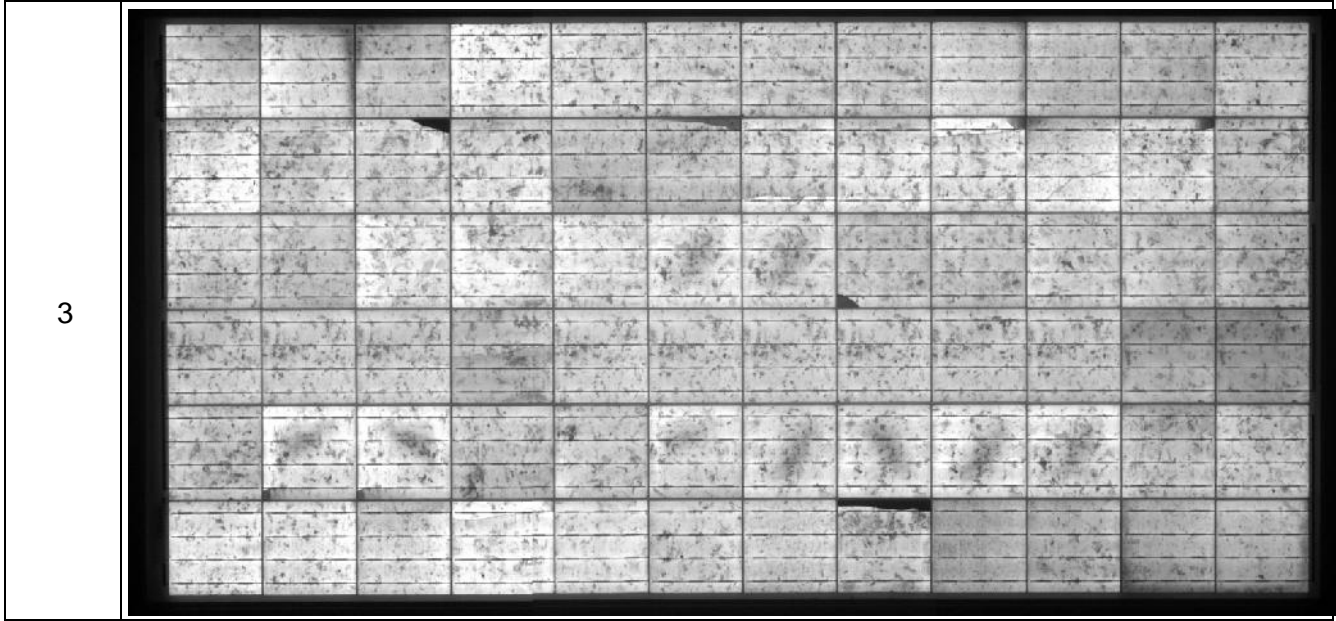
10.2	TABLE: MAXIMUM POWER DETERMINATION – INITIAL (PRE PID TEST AFTER PRECONDITIONING)						—
Test Date [MM/DD/YYYY].....:		08/12/2016				—	
Module temperature [°C].....:		25				—	
Irradiance [W/m ²].....:		1000				—	
Sample #	Voc [V]	Vmp [V]	Isc [A]	Imp [A]	Pmp [W]	FF [%]	
1	45.38	36.93	8.74	8.26	304.93	77	
2	45.36	37.02	8.67	8.20	303.69	77	
3	45.30	36.73	8.76	8.24	302.52	76	
Supplementary information: NA							

10.7 B	TABLE: PERFORMANCE AT LOW IRRADIANCE- INITIAL (PRE PID TEST)						—
Test Date [MM/DD/YYYY]				08/12/2016		—	
Ambient air temperature [°C]				25		—	
Irradiance [W/m ²](200 W/m ²).....				200		—	
Module temperature [°C].....				25		—	
Test method.....				<input checked="" type="checkbox"/> Data corrected to a 25°C cell temperature and 200 W/m ² irradiance		—	
Sample #	Voc [V]	Vmp [V]	Isc [A]	Imp [A]	Pmp [W]	FF [%]	
1	42.10	35.65	1.77	1.65	58.66	79	
2	42.12	35.67	1.76	1.64	58.46	79	
3	42.02	35.16	1.77	1.65	58.07	78	
Supplementary information: NA							

10.15	TABLE: Wet leakage current test- (Pre PID Test)				—
Test Date [MM/DD/YYYY]			08/12/2016		—
Test Voltage applied [V].....			1000		—
--			Required	Measured	—
Solution resistivity [cm)			< 3,500 -cm at 22 ± 3°C	3499	—
Surface tension [Nm ⁻²)			< 0,03 N/m ² at 22 ± 3°C	--	—
Solution temperature [°C].....			25		—
Sample #	Measured [M]		Limit [M]		Result
1	265		20.66		P
2	256		20.66		P
3	286		20.66		P
Supplementary information: Size of module [m ²]: 1.936					

Date: 08/12/2016

Table	ELECTROLUMINESCENCE IMAGES – INITIAL (PRE PID TEST)
Sample No.	Image At 0.1* Isc
1	
2	



Date: 08/12/2016

Table 10.4	MST 13 – GROUND CONTINUITY TEST (Pre PID Test)			—
Maximum over-current protection rating (A) ..:		12	—	
Current applied (A)		30	—	
Location of designated grounding point		Grounding holes on frames		—
Location of second contacting point.....:		--	—	
Sample No.	Position in test sequence:	Voltage (V)	Resistance (Ω)	—
1	Initial examination	0.53	0.018	P
	Final examination	0.43	0.014	P
2	Initial examination	0.25	0.008	P
	Final examination	0.34	0.011	P
3	Initial examination	0.83	0.028	P
	Final examination	0.77	0.026	P
Supplementary information: NA				

Date: 09/12/2016 – 13/12/2016

POTENTIAL INDUCED DEGRADATION TEST				—
Voltage across the terminal & frame		1000 V		—
Chamber Temperature		85 ± 2 °C		—
Chamber RH (%)		85 ± 3 %		—
Hours of exposure		1st Cycle at 85°C ± 2°C, 85 ± 3% of RH for 96Hrs		—
Sample No.	Position in test sequence:	Voltage (V)	Resistance (Ω)	—
1	Negative connected to frame Positive connected to shorted Terminals	1000	500	P
2	Negative connected to frame Positive connected to shorted Terminals	1000	500	P
Supplementary information: NA				

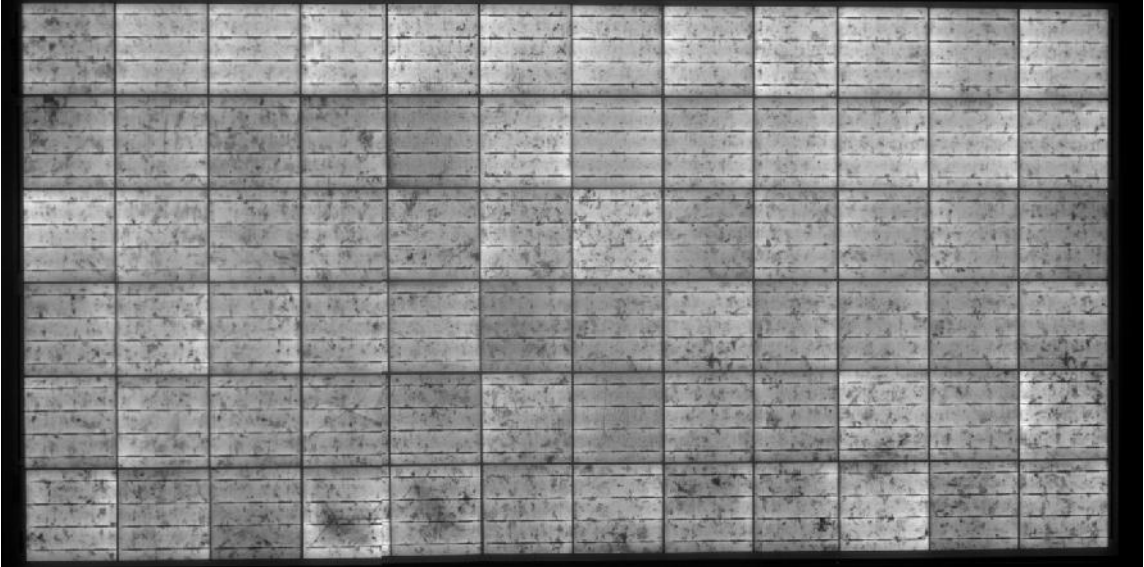
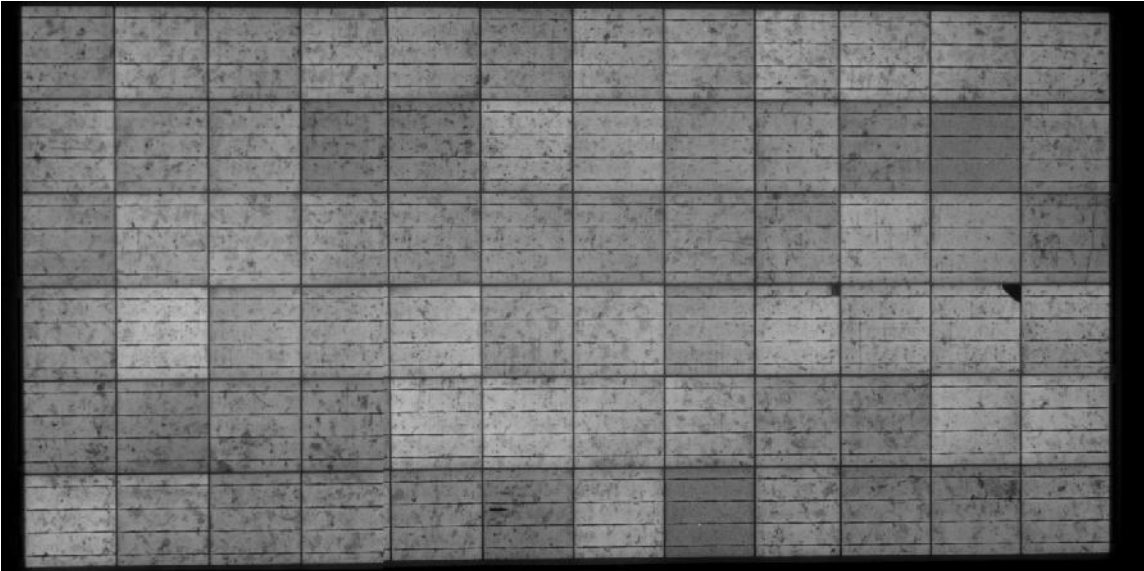
10.2	TABLE: MAXIMUM POWER DETERMINATION (POST PID TEST) – AFTER 1 ST CYCLE					—
Test Date [MM/DD/YYYY].....		14/12/2016			—	
Module temperature [°C].....		25			—	
Irradiance [W/m ²]		1000			—	
Sample #	Voc [V]	Vmp [V]	Isc [A]	Imp [A]	Pmp [W]	FF [%]
1	45.34	36.68	8.77	8.26	302.99	76
2	45.34	36.76	8.76	8.23	302.66	76
3	45.40	37.04	8.78	8.23	304.97	77
Supplementary information: NA						



10.7 B	TABLE: PERFORMANCE AT LOW IRRADIANCE- (POST PID TEST) – AFTER 1 ST CYCLE					—
Test Date [MM/DD/YYYY]		14/12/2016			—	
Ambient air temperature [°C]		25			—	
Irradiance [W/m2](200 W/m2).....		200			—	
Module temperature [°C].....		25			—	
Test method.....		<input checked="" type="checkbox"/> Data corrected to a 25°C cell temperature and 200 W/m ² irradiance			—	
Sample #	Voc [V]	Vmp [V]	Isc [A]	Imp [A]	Pmp [W]	FF [%]
1	42.10	35.31	1.78	1.65	58.32	78
2	42.10	35.18	1.78	1.65	58.00	77
Supplementary information: NA						

10.15	TABLE: Wet leakage current test- (Post PID Test) – After 1 st Cycle			—
Test Date [MM/DD/YYYY]		14/12/2016		—
Test Voltage applied [V].....		1000		—
--	Required		Measured	—
Solution resistivity [Ω·cm)		< 3,500 Ω·cm at 22 ± 3°C		3499
Surface tension [Nm ⁻²)		< 0,03 N/m ² at 22 ± 3°C		--
Solution temperature [°C].....		25		—
Sample #	Measured [M]	Limit [M]	Result	
1	435	20.66	P	
2	425	20.66	P	
Supplementary information: Size of module [m ²]: 1.936				

Date: 14/12/2016

Table	ELECTROLUMINESCENCE IMAGES – (POST PID TEST) – AFTER 1ST CYCLE
Sample No.	Image At 0.1* Isc
1	
2	

Date: 14/12/2016

Table 10.1	MST 01 – VISUAL INSPECTION – (Post PID Test) – AFTER 1ST CYCLE		
Sample No.	Findings	Remarks	
1	No Visual Defects	PASS	
2	No Visual Defects	PASS	

Total Degradation Observed: After 1st Cycle

Sample 1: 0.64 %

Sample 2: 0.34 %

Note and other observations from Lab: NA

Date: 15/12/2016 - 19/12/2016

POTENTIAL INDUCED DEGRADATION TEST				—
Voltage across the terminal & frame		1000 V		—
Chamber Temperature		85 ± 2 °C		—
Chamber RH (%)		85 ± 3 %		—
Hours of exposure		2nd Cycle at 85°C ± 2°C, 85 ± 3% of RH for 96Hrs		—
Sample No.	Position in test sequence:	Voltage (V)	Resistance (Ω)	—
1	Negative connected to frame Positive connected to shorted Terminals	1000	500	P
2	Negative connected to frame Positive connected to shorted Terminals	1000	500	P
Supplementary information: NA				

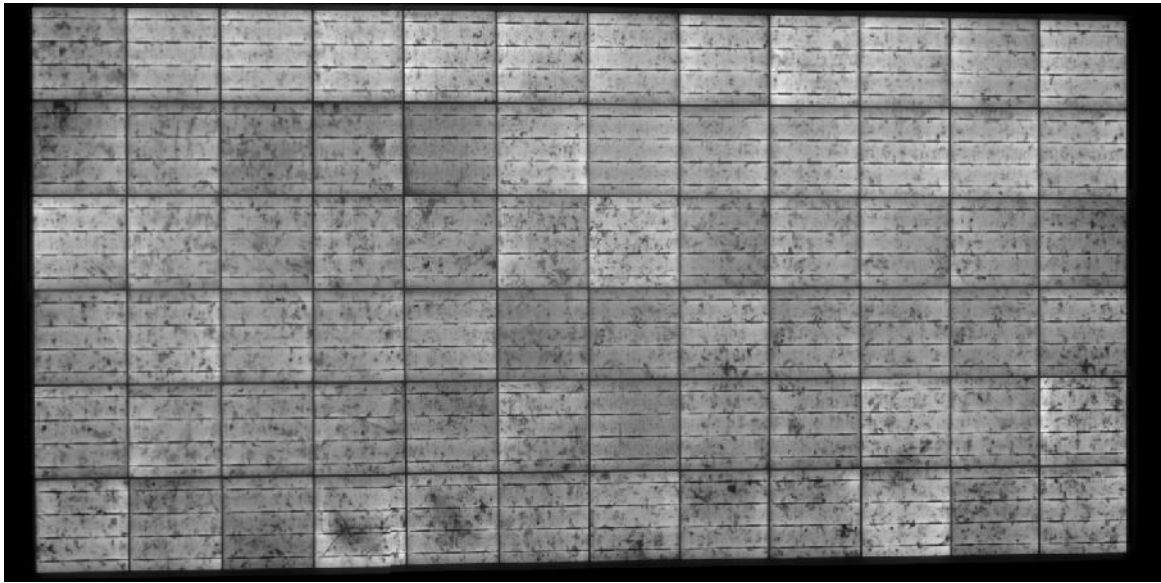


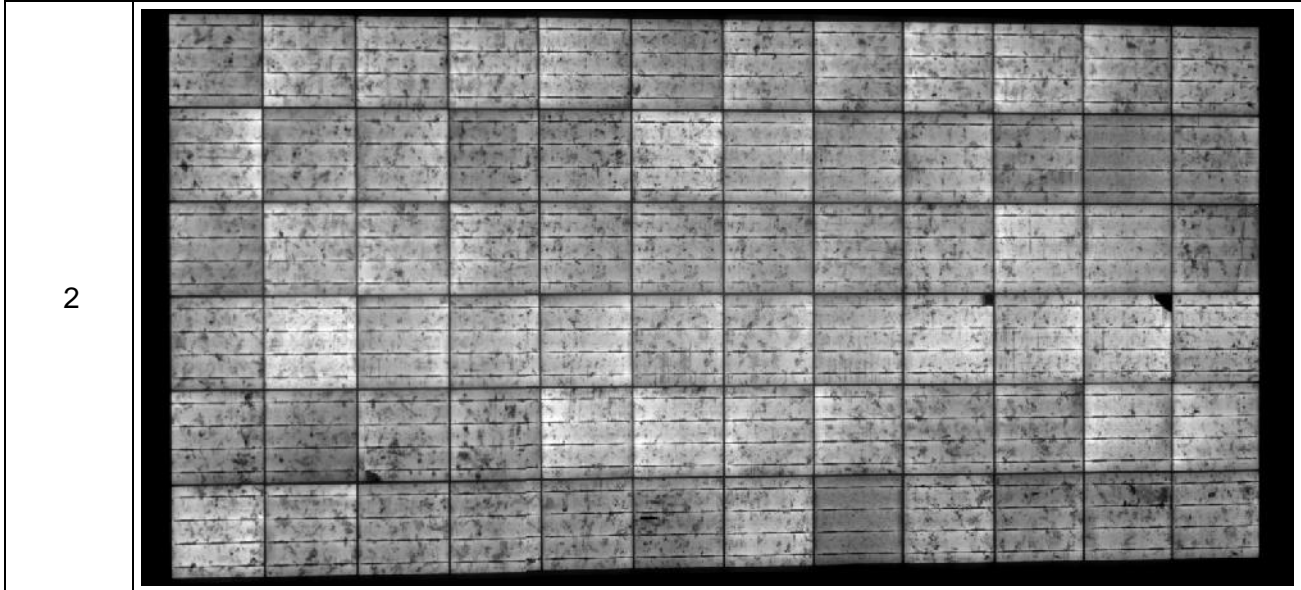
10.2	TABLE: MAXIMUM POWER DETERMINATION (POST PID TEST) – AFTER 2 ND CYCLE						—
Test Date [MM/DD/YYYY].....			20/12/2016			—	
Module temperature [°C].....			25			—	
Irradiance [W/m ²]			1000			—	
Sample #	Voc [V]	Vmp [V]	Isc [A]	Imp [A]	Pmp [W]	FF [%]	
1	45.38	36.76	8.73	8.21	301.88	76	
2	45.38	36.81	8.74	8.20	301.75	76	
3	45.35	36.84	8.78	8.26	304.40	76	
Supplementary information: NA							

10.7 B	TABLE: PERFORMANCE AT LOW IRRADIANCE- (POST PID TEST) – AFTER 2 ND CYCLE						—
Test Date [MM/DD/YYYY]			20/12/2016			—	
Ambient air temperature [°C]			25			—	
Irradiance [W/m ²](200 W/m ²).....			200			—	
Module temperature [°C].....			25			—	
Test method.....			<input checked="" type="checkbox"/> Data corrected to a 25°C cell temperature and 200 W/m ² irradiance			—	
Sample #	Voc [V]	Vmp [V]	Isc [A]	Imp [A]	Pmp [W]	FF [%]	
1	41.94	35.23	1.76	1.63	57.29	78	
2	42.04	35.20	1.76	1.62	57.15	77	
Supplementary information: NA							

10.15	TABLE: Wet leakage current test- (Post PID Test) – After 2nd Cycle		—
Test Date [MM/DD/YYYY]	20/12/2016		—
Test Voltage applied [V].....	1000		—
--	Required	Measured	--
Solution resistivity [Ω cm)	< 3,500 Ω -cm at 22 \pm 3°C	3499	--
Surface tension [Nm ⁻²)	< 0,03 N/m ² at 22 \pm 3°C	--	--
Solution temperature [°C].....	25		--
Sample #	Measured [M]	Limit [M]	Result
1	321	20.66	P
2	319	20.66	P
Supplementary information: Size of module [m ²]: 1.936			

Date: 20/12/2016

Table	ELECTROLUMINESCENCE IMAGES – (POST PID TEST) – AFTER 2ND CYCLE
Sample No.	Image At 0.1* Isc
1	



Date: 20/12/2016

Table 10.1	MST 01 – VISUAL INSPECTION – (Post PID Test) – AFTER 2ND CYCLE		
Sample No.	Findings	Remarks	
1	No Visual Defects	PASS	
2	No Visual Defects	PASS	

Total Degradation Observed: After 2nd Cycle

Sample 1: 1 %

Sample 2: 0.64 %

Note and other observations from Lab: NA

Date: 23/12/2016 - 27/12/2016

POTENTIAL INDUCED DEGRADATION TEST				—
Voltage across the terminal & frame		1000 V		—
Chamber Temperature		85 ± 2 °C		—
Chamber RH (%)		85 ± 3 %		—
Hours of exposure		3rd Cycle at 85°C ± 2°C, 85 ± 3% of RH for 96Hrs		—
Sample No.	Position in test sequence:	Voltage (V)	Resistance (Ω)	—
1	Negative connected to frame Positive connected to shorted terminals	1000	500	P
2	Negative connected to frame Positive connected to shorted terminals	1000	500	P
Supplementary information: NA				

10.2	TABLE: MAXIMUM POWER DETERMINATION (POST PID TEST) – AFTER 3RD CYCLE						—
Test Date [MM/DD/YYYY].....		28/12/2016				—	
Module temperature [°C].....		25				—	
Irradiance [W/m ²]		1000				—	
Sample #	Voc [V]	Vmp [V]	Isc [A]	Imp [A]	Pmp [W]	FF [%]	
1	45.37	36.60	8.73	8.24	301.71	76	
2	45.50	36.85	8.74	8.19	301.99	76	
3	45.37	36.74	8.78	8.30	304.77	77	
Supplementary information: NA							

10.7 B	TABLE: PERFORMANCE AT LOW IRRADIANCE - (POST PID TEST) – AFTER 3RD CYCLE						—
Test Date [MM/DD/YYYY]				28/12/2016		—	
Ambient air temperature [°C]				25		—	
Irradiance [W/m2](200 W/m2).....				200		—	
Module temperature [°C].....				25		—	
Test method.....				<input checked="" type="checkbox"/> Data corrected to a 25°C cell temperature and 200 W/m ² irradiance		—	
Sample #	Voc [V]	Vmp [V]	Isc [A]	Imp [A]	Pmp [W]	FF [%]	
1	41.97	34.93	1.76	1.64	57.23	77	
2	41.99	35.25	1.76	1.62	57.07	77	
Supplementary information: NA							

10.15	TABLE: Wet leakage current test - (Post PID Test) – After 3rd Cycle				---
Test Date [MM/DD/YYYY]			28/12/2016		—
Test Voltage applied [V].....			1000		—
--			Required	Measured	—
Solution resistivity [Ω·cm)			< 3,500 Ω·cm at 22 ± 3°C	3499	—
Surface tension [Nm ⁻²)			< 0,03 N/m ² at 22 ± 3°C	--	—
Solution temperature [°C].....			25		
Sample #	Measured [M Ω]		Limit [M Ω]		Result
1	298		20.66		P
2	334		20.66		P
Supplementary information: Size of module [m ²]: 1.936					

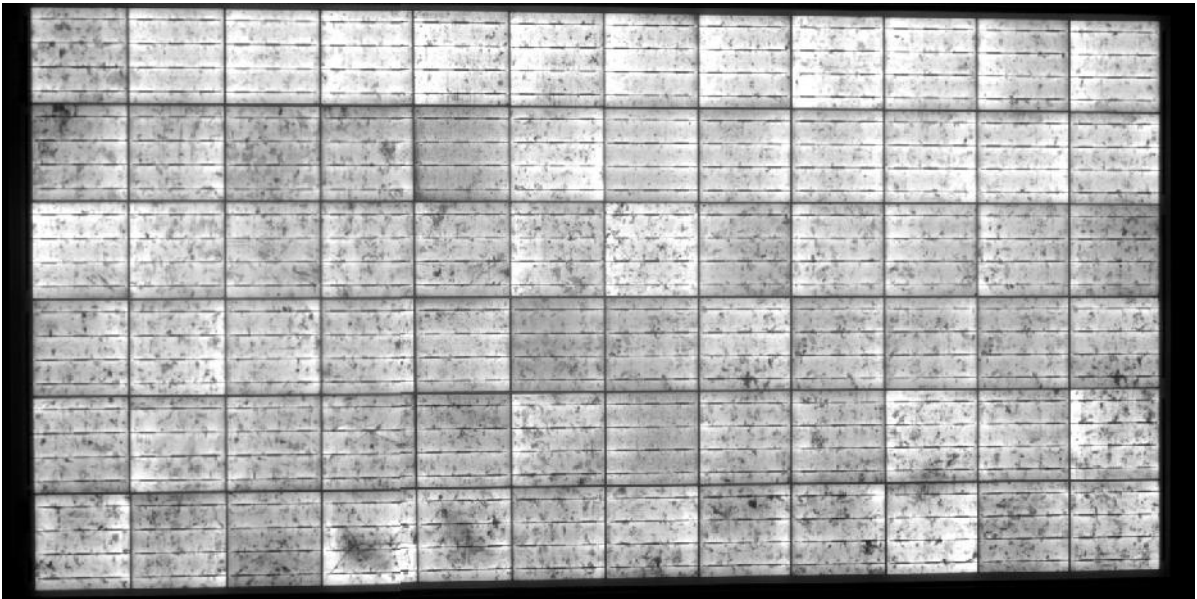
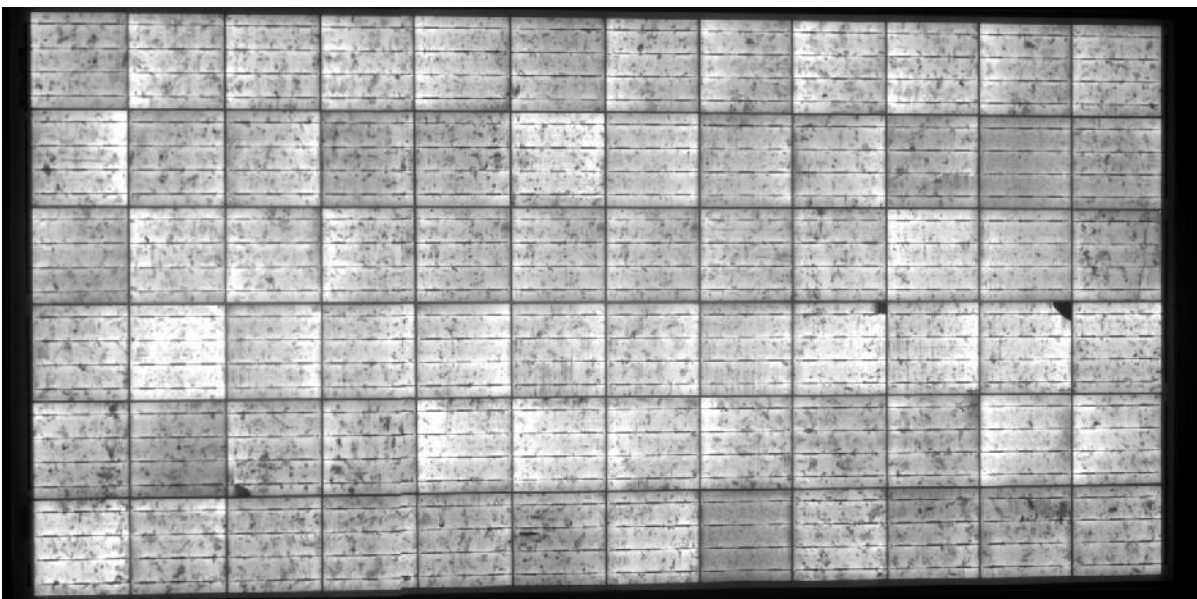
Table	ELECTROLUMINESCENCE IMAGES – (POST PID TEST) – AFTER 3RD CYCLE
Sample No.	Image At 0.1* Isc
1	
2	

Table 10.1	MST 01 – VISUAL INSPECTION – FINAL (Post PID Test) – AFTER 3RD CYCLE – FINAL CYCLE	
Sample No.	Findings	Remarks
1	No Visual Defects	PASS
2	No Visual Defects	PASS

Total Degradation Observed: After 3rd Cycle - Final Degradation

Sample 1: 1.06 %

Sample 2: 0.56 %

Note and other observations from Lab: NA



Test criteria - Power loss <5% at 1000W/m²

ANNEXURES

Note:

- ➔ *All PIV Curves attached as “Annexure A” along with this Report as separate attachment for reference.*
- ➔ *All EL Images attached as “Annexure B” along with this Report as separate attachment for reference.*

PHOTOS

		ICON Solar-en Power Technologies Pvt. Ltd. Office Address : 319-320, Offizo, 3rd Floor, Magneto Mall, G.E. Road, Raipur (C.G.) Pin : 492001 INDIA Tel : +91 771-4065755 www.iconsolar-en.com	
MODEL NO	IS-EN 300		
PRODUCT TYPE	ATHARVA		
MAXIMUM POWER (Pmax)	300 Wp		
OPEN CIRCUIT VOLTAGE (Voc)	43.2 V		
SHORT CIRCUIT CURRENT (Isc)	8.76 A		
VOLTAGE AT MAXIMUM POWER (Vmp)	37.4 V		
CURRENT AT MAXIMUM POWER (Imp)	8.05 A		
MAXIMUM SYSTEM VOLTAGE	1000 V		
SERIES FUSE RATING	12 A		
MAXIMUM DESIGN LOAD	2400 Pa		
APPLICATION CLASS	CLASS A		
SAFETY CLASS	CLASS II		
MODULE SERIAL NO :	INSIDE OF THE GLASS IN FRONT		
	WARNING ELECTRICAL HAZARD THIS UNIT PRODUCES ELECTRICITY WHEN EXPOSED TO LIGHT. COVER GLASS BEFORE CONNECTING TO THE LOAD.		
	POWER SPECIFICATION MEASURED AT STANDARD TEST CONDITIONS (Cell Temperature 25°C, Irradiance 1000W/m ² & AM 1.5 G)		
Tested According to IEC 61215, IEC61730 & IEC61701 Ed:1			



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******* End of the Report *******

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